

# SEQUENCE LISTING

<110> Cahoon, Rebecca E.  
Klein, Theodore M.  
Odell, Joan T.  
Orozco, Emil M. Jr.

<120> PLANT CELL CYCLIN GENES

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<150> US 09/665,308

<151> 2000-09-19

<150> US 60/078,948

<151> 1998-03-23

<150> PCT/US99/06047

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 Ile Glu Ala Val Gln Ala Asp Val Thr Ala His Met Arg Ser Ile Leu  
 50 55 60  
 Val Asp Trp Leu Val Glu Val Ala Glu Glu Tyr Lys Leu Val Ala Asp  
 65 70 75 80  
 Thr Leu Tyr Leu Thr Ile Ser Tyr Val Asp Arg Phe Leu Ser Val Asn  
 85 90 95  
 Ala Leu Gly Arg Asp Lys Leu Gln Leu Leu Gly Val Ala Ser Met Leu  
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 Cys Tyr Ile Thr Asp Asn Thr Tyr Thr Lys Glu Glu Leu Leu Lys Met  
 130 135 140  
 Glu Ser Asp Ile Leu Lys Leu Leu Lys Phe Glu Leu Gly Asn Pro Thr  
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 Ile Lys Thr Phe Leu Arg Arg Phe Ile Arg Ser Ala His Glu Asp Lys  
 165 170 175  
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 180 185 190  
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 195 200 205  
 Ala Ala Ser Val Met Phe Val Ala Arg Pro Asp Ile Asp Pro Asn Thr  
 210 215 220  
 Asn Pro Trp Asn Thr Lys Leu Gln Lys Met Thr Gly Tyr Lys Val Ser  
 225 230 235 240  
 Glu Leu Lys Asp Cys Ile Val Ala Ile His Asp Leu Gln Leu Asn Arg  
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 Lys Cys Pro Ser Leu Thr Ala Ile Arg Asp Lys Tyr Lys Gln His Lys  
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 Gly Glu Leu Pro Asn Leu Gln Asn Leu Ile Val Ser Glu Thr Gln Asn  
 35 40 45  
 Xaa Arg Lys Glu Lys Xaa Leu Cys Xaa Lys Asn Pro Asn Glu Lys Lys  
 50 55 60  
 Pro Ser Pro Thr Asn Asn Asn Thr Phe Pro Ser Pro Gln Ile Xaa Glu  
 65 70 75 80  
 Ser Tyr Asp Ser Asp Ile His Gly Tyr Leu Arg Glu Met Glu Met Gln  
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<213> Triticum aestivum

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<213> Triticum aestivum

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20 25 30
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Gly Leu Asn Val Ile Asp Ile Asp Lys Asp Asn Gly Asn Pro Gln Met
35 40 45
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Cys Ala Ser Tyr Ala Ala Glu Ile Tyr Arg Asn Leu Met Ala Ala Glu
50 55 60
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Leu Ile Arg Arg Pro Lys Ser Asn Tyr Met Glu Thr Leu Gln Arg Asp
65 70 75 80
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Ile Thr Lys Gly Met Arg Gly Ile Leu Ile Asp Trp Ala Leu Arg Phe  
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                             100                            105                            110  
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                             130                            135                            140  
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 Tyr Thr Lys Asn Gln Val Leu Lys Met Glu Cys Glu Val Leu Asn Asp  
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 Leu Gly Phe His Leu Ser Val Pro Thr Ile Lys Thr Phe Leu Arg Arg  
                             180                            185                            190  
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 35 40 45  
 Val Val Asp Gln Asp Glu Glu Tyr Val Ala Leu Leu Leu Ser Lys Glu  
 50 55 60  
 Ser Ala Ser Gly Gly Gly Gly Pro Val Glu Glu Met Glu Asp Trp Met  
 65 70 75 80  
 Lys Ala Ala Arg Ser Gly Cys Val Arg Trp Ile Ile Lys Thr Thr Ala  
 85 90 95  
 Met Phe Arg Phe Gly Gly Lys Thr Ala Tyr Val Ala Val Asn Tyr Leu  
 100 105 110  
 Asp Arg Phe Leu Ala Gln Arg Arg Val Asn Arg Glu His Ala Trp Gly  
 115 120 125  
 Leu Gln Leu Leu Met Val Ala Cys Met Ser Leu Ala Thr Lys Leu Glu  
 130 135 140  
 Glu His His Ala Pro Arg Leu Ser Glu Phe Pro Leu Asp Ala Cys Glu  
 145 150 155 160  
 Phe Ala Phe Asp Ser Ala Ser Ile Leu Arg Met Glu Leu Leu Val Leu  
 165 170 175  
 Gly Thr Leu Glu Trp Arg Met Ile Ala Val Thr Pro Phe Pro Tyr Ile  
 180 185 190  
 Ser Tyr Phe Ala Ala Arg Phe Arg Glu Thr Ser Ala Gly Arg Ile Leu  
 195 200 205

Met Arg Ala Val Glu Cys Val Phe Ala Ala Ile Lys Val Ile Ser Ser  
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Val Glu Xaa Arg Pro Ser Thr Ile Ala Val Ala Ser Ile Leu  
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Asp Arg Phe Leu Ala Arg Arg Cys Val Asp Arg Asp Lys Glu Trp Ala  
 35 40 45

Leu Gln Leu Leu Ser Val Ala Cys Leu Ser Leu Ala Ala Lys Val Glu  
 50 55 60

Glu Arg Arg Pro Pro Arg Leu Pro Glu Phe Lys Leu Asp Met Tyr Asp  
 65 70 75 80

Cys Ala Ser Leu Met Arg Met Glu Leu Leu Val Leu Thr Thr Leu Lys  
 85 90 95

Trp Gln Met Ile Thr Glu Thr Pro Phe Ser Tyr Leu Asn Cys Phe Thr  
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Ala Lys Phe Arg His Asp Glu Arg Lys Ala Ile Val Leu Arg Ala Ile  
 115 120 125

Glu Cys Ile Phe Ala Ser Ile Lys Val Ile Ser Ser Val Gly Tyr Gln  
 130 135 140

Pro Ser Thr Ile Ala Leu Ala Ala Ile Leu Ile Ala Arg Asn Lys Glu  
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Gln Leu Met Met Leu  
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<212> PRT

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20 25 30

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35 40 45

Pro Pro Pro Pro Ser Pro Thr Thr Glu Asp Cys Tyr Ser Ile Ala Ser  
50 55 60

Phe Ile Glu His Glu Arg Asn Phe Val Pro Gly Phe Glu Tyr Leu Ser  
65 70 75 80

Arg Phe Gln Ser Arg Ser Leu Asp Ala Asn Ala Arg Glu Glu Ser Val  
85 90 95

Gly Trp Ile Leu Lys Val His Ala Tyr Tyr Gly Phe Gln Pro Leu Thr  
100 105 110

Ala Tyr Leu Ala Val Asn Tyr Met Asp Arg Phe Leu Asp Ser Arg Arg  
115 120 125

Leu Pro Glu Thr Asn Gly Trp Pro Leu Gln Leu Val Ser Val Ala Cys  
130 135 140

Leu Ser Leu Ala Ala Lys Met Glu Glu Pro Leu Val Pro Ser Leu Leu  
145 150 155 160

Asp Leu Gln Ile Glu Gly Ala Lys Tyr Ile Phe Glu Pro Arg Thr Ile  
165 170 175

Arg Arg Met Glu Leu Leu Val Leu Gly Val Leu Asp Trp Arg Leu Arg  
180 185 190

Ser Val Thr Pro Leu Cys Phe Leu Ala Phe Phe Ala Cys Lys Val Asp  
195 200 205

Ser Thr Gly Thr Phe Ile Arg Phe Leu Ile Ser Arg Ala Thr Glu Ile  
210 215 220

Ile Val Ser Asn Ile Gln Glu Ala Ser Phe Leu Ala Tyr Trp Pro Ser  
225 230 235 240

Cys Ile Ala Ala Ala Ala Ile Leu Thr Ala Ala Asn Glu Ile Pro Asn  
245 250 255

Trp Ser Val Val Lys Pro Glu Asn Ala Glu Ser Trp Cys Glu Gly Leu  
260 265 270

Arg Lys Glu Lys Val Ile Gly Cys Tyr Gln Leu Met Gln Glu Leu Val  
275 280 285

Ile Asn Asn Asn Gln Arg Lys Leu Pro Leu Leu Lys Val Leu Pro Gln  
 290 295 300

Leu Arg Val Thr Thr Arg Thr Arg Met Arg Ser Ser Thr Val Ser Ser  
 305 310 315 320

Phe Ser Ser Ser Ser Ser Thr Ser Phe Ser Leu Ser Cys Lys Arg Arg  
 325 330 335

Lys Leu Asn Asn Arg Leu Trp Val Asp Asp Lys Gly Asn Ser Glu  
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<210> 13  
 <211> 1994  
 <212> DNA  
 <213> Glycine max

<400> 13

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gttgcattga	ttctcaaggt	gcaggcttat	tacgcttttc	aaccggtcac	ggcttatctt	240
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ttttgttttc	tttttagtgc	ctaattggct	ttgggagaaa	ttggagttaa	ggcctttggg	1920
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aaaaaaaaaa	aaaa					1994

<210> 14  
 <211> 318  
 <212> PRT  
 <213> Glycine max

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Asp Glu Arg Asn Phe Val Pro Gly Phe Glu Tyr Leu Asn Arg Phe Gln	35	40	45
Ser Arg Ser Leu Asp Ala Ser Ala Arg Glu Glu Ser Val Ala Trp Ile	50	55	60
Leu Lys Val Gln Ala Tyr Tyr Ala Phe Gln Pro Val Thr Ala Tyr Leu	65	70	75
Ser Val Asn Tyr Leu Asp Arg Phe Leu Asn Ser Arg Pro Leu Pro Pro	85	90	95
Lys Thr Asn Gly Trp Pro Leu Gln Leu Leu Ser Val Ala Cys Leu Ser	100	105	110
Leu Ala Ala Lys Met Glu Glu Ser Leu Val Pro Ser Leu Leu Asp Leu	115	120	125
Gln Val Glu Gly Ala Lys Tyr Val Phe Glu Pro Lys Thr Ile Arg Arg	130	135	140
Met Glu Leu Leu Val Leu Gly Val Leu Asp Trp Arg Leu Arg Ser Val	145	150	155
Thr Pro Phe Ser Phe Leu Asp Phe Phe Ala Cys Lys Leu Asp Ser Thr	165	170	175
Gly Thr Phe Thr Gly Phe Leu Ile Ser Arg Ala Thr Gln Ile Ile Leu	180	185	190
Ser Asn Ile Gln Glu Ala Ser Phe Leu Ala Tyr Trp Pro Ser Cys Ile	195	200	205
Ala Ala Ala Ala Ile Leu His Ala Ala Asn Glu Ile Pro Asn Trp Ser	210	215	220
Leu Val Arg Pro Glu His Ala Glu Ser Trp Cys Glu Gly Leu Arg Lys	225	230	235
Glu Lys Ile Ile Gly Cys Tyr Gln Leu Met Gln Glu Leu Val Ile Asp	245	250	255
Asn Asn Gln Arg Lys Pro Pro Lys Val Leu Pro Gln Leu Arg Val Thr	260	265	270
Ile Ser Arg Pro Ile Met Arg Ser Ser Val Ser Ser Phe Leu Ala Ser	275	280	285
Ser Ser Ser Pro Ser Ser Ser Ser Leu Ser Cys Arg Arg Arg Lys Leu	290	295	300
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<211> 570  
 <212> DNA  
 <213> Triticum aestivum

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<220>  
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 <223> n = A, C, G or T

<220>  
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 <222> (558)  
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 gagatttggg ctccagaggt gaacgacttc atattgttct cgcacaacac atatactagg 180  
 gagcagattc tgaggatgga gaaggcaatc ctgaacatgc ttgagtggaa cctgacagtg 240  
 cccacacctt acgtcttctt cgtgtgattc gccaaaggccg catcctcctg agataagaag 300  
 aacggcaagg aggtaaaagg aacaccagat tttaacaaat cctcagatgt agtacgtatc 360  
 tccatttgcc aaacatgata tattgctgaa ttctgttctc cctgggtgat tgtctaaatg 420  
 gagacacgtc tttttttcgt ggactggcgc tctgtagtat ggacagaata tgtttgattc 480  
 agcacacaag agacaggtna tcaacacaca gtagnnacag tgtctgtaca gccgtataca 540  
 taacattata cttctcanag accacttttg 570

<210> 16  
 <211> 75  
 <212> PRT  
 <213> Triticum aestivum

<220>  
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 <222> (68)  
 <223> Xaa = ANY AMINO ACID

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 20 25 30  
 Ser Asp Asn Thr Tyr Thr Arg Glu Gln Ile Leu Arg Met Glu Lys Ala  
 35 40 45  
 Ile Leu Asn Met Leu Glu Trp Asn Leu Thr Val Pro Thr Pro Tyr Val  
 50 55 60  
 Phe Leu Val Xaa Phe Ala Lys Ala Ala Ser Ser  
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<210> 17  
 <211> 1932  
 <212> DNA

<213> Zea mays

<220>

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<222> (26)

<223> n = A, C, G or T

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<222> (159)

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accagccacc	cagcaactcca	gccgccagac	cagagctcnc	ggcgccgccg	tcgcacgaca	180
ggagagggag	agatacgcgg	gctttgactt	gccgccggtg	cgcccggtgcg	tgccctggtgg	240
gaatagtggg	agacgcgggt	acagtacagg	agccatggcg	ccgagctgct	acgacgcggc	300
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cggcgccggac	ttgttcccgc	cgcagtcgga	ggaatgcgtg	gccggtctgg	tggagcgggg	480
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ggatgactca	gaataaagat	agtggaggga	ccagaccgta	tgacgtatgt	gcaacaaacta	1800
ggcactggca	tgcttatgct	caagtaatct	gataacttga	atgttggtgta	tccgacaaac	1860
tgcttctgtg	aagagagaaa	tgacggtaga	cgatgaatgt	atgtgaaaaa	aaaaaaaaaa	1920
aaaaaaaaaa	ac					1932

<210> 18

<211> 388

<212> PRT

<213> Zea mays

<400> 18

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Glu Glu His Ser Ser Ile Leu Trp Tyr Glu Glu Glu Glu Glu Glu Leu  
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 Glu Ala Val Gly Arg Arg Ser Gly Arg Ser Pro Gly Tyr Gly Asp Asp  
 35 40 45  
 Phe Gly Ala Asp Leu Phe Pro Pro Gln Ser Glu Glu Cys Val Ala Gly  
 50 55 60  
 Leu Val Glu Arg Glu Arg Asp His Met Pro Gly Pro Cys Tyr Gly Asp  
 65 70 75 80  
 Arg Leu Arg Gly Gly Gly Gly Cys Leu Cys Val Arg Arg Glu Ala Val  
 85 90 95  
 Asp Trp Ile Trp Lys Ala Tyr Thr His His Arg Phe Arg Pro Leu Thr  
 100 105 110  
 Ala Tyr Leu Ala Val Asn Tyr Leu Asp Arg Phe Leu Ser Leu Ser Glu  
 115 120 125  
 Val Pro Asp Cys Lys Asp Trp Met Thr Gln Leu Leu Ala Val Ala Cys  
 130 135 140  
 Val Ser Leu Ala Ala Lys Met Glu Glu Thr Ala Val Pro Gln Cys Leu  
 145 150 155 160  
 Asp Leu Gln Glu Val Gly Asp Ala Arg Tyr Val Phe Glu Ala Lys Thr  
 165 170 175  
 Val Gln Arg Met Glu Leu Leu Val Leu Thr Thr Leu Asn Trp Arg Met  
 180 185 190  
 His Ala Val Thr Pro Phe Ser Tyr Val Asp Tyr Phe Leu Asn Lys Leu  
 195 200 205  
 Asn Asn Gly Gly Ser Thr Ala Pro Arg Ser Cys Trp Leu Leu Gln Ser  
 210 215 220  
 Ala Glu Leu Ile Leu Arg Ala Ala Arg Gly Thr Gly Cys Val Gly Phe  
 225 230 235 240  
 Arg Pro Ser Glu Ile Ala Ala Ala Val Ala Ala Ala Val Ala Gly Asp  
 245 250 255  
 Val Asp Asp Ala Asp Gly Val Glu Asn Ala Cys Cys Ala His Val Asp  
 260 265 270  
 Lys Glu Arg Val Leu Arg Cys Gln Glu Ala Ile Gly Ser Met Ala Ser  
 275 280 285  
 Ser Ala Ala Ile Asp Asp Ala Thr Val Pro Pro Lys Ser Ala Arg Arg  
 290 295 300  
 Arg Ser Ser Pro Val Pro Val Pro Gln Ser Pro Val Gly Val Leu Asp  
 305 310 315 320  
 Ala Ala Pro Cys Leu Ser Tyr Arg Ser Glu Glu Ala Ala Thr Ala Thr  
 325 330 335

Ala Thr Ala Thr Ser Ala Ala Ser His Gly Ala Pro Gly Ser Ser Ser  
340 345 350

Ser Ser Ser Thr Ser Pro Val Thr Ser Lys Arg Arg Lys Leu Ala Ser  
355 360 365

Arg Cys Asp Gly Ser Cys Ser Asp Arg Ser Lys Arg Ala Pro Ala Gln  
370 375 380

Trp Thr Lys Glu  
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<212> DNA  
<213> Oryza sativa

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tctccgccgn cgacatccag aggggcgagg agttcatgtt cgacgaggcg aaaatccagc 180  
gcatggagca gatggtgctc aacgcgctgg agtggcgga cgcgtccgtc acgccgctcg 240  
ccttcctcgg nttctttctc tccgcgtggt tcccgcaagc cgcggcaccc ggcgctgctc 300  
gatgccatca nggccgcgcc gtcgagctcc tctccgcgt ctaagccggg angtgaacna 360

tgggtgggagt tctccccctt cgggtggccgg ccgncgcggn tctcctcnch gccgncggn 420  
 aaggcntccg gnngcccaaa ctctcttncct tccaaanctg nnggccccgn tttgncccct 480  
 t 481

<210> 20  
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 <212> PRT  
 <213> Oryza sativa

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 Arg Ala Ala Ala Ile Ser Ala Xaa Asp Ile Gln Arg Gly Glu Glu Phe  
 35 40 45  
 Met Phe Asp Glu Ala Lys Ile Gln Arg Met Glu Gln Met Val Leu Asn  
 50 55 60  
 Ala Leu Glu Trp Arg Thr Arg Ser Val Thr Pro Leu Ala Phe Leu Gly  
 65 70 75 80  
 Phe Phe Leu Ser Ala Trp Phe Pro Gln Ala Ala Ala Pro Gly Ala Ala  
 85 90 95  
 Arg Cys His Xaa Gly Arg Ala Val Glu Leu Leu Leu Arg Val  
 100 105 110

<210> 21  
 <211> 789  
 <212> DNA  
 <213> Triticum aestivum

<400> 21  
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 aaagtgatgg agcttttgggt cttcagcacc ttgaaatgga ggatgcaagc tgttactgct 180  
 tgctcgttta ttgactactt cctttgcaaa ttcaatgatc atgacacacc ctccatgctt 240  
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 tcagttgtcg aaatggctac aactaattgc aagtatataa acaagggagt gtgatgtgac 420  
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<210> 22
<211> 163
<212> PRT
<213> Triticum aestivum

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<220>
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<220>
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20          25          30
Ser Ala Phe Glu Ala Arg Thr Ile Lys Val Met Glu Leu Leu Val Phe
35          40          45
Ser Thr Leu Lys Trp Arg Met Gln Ala Val Thr Ala Cys Ser Phe Ile
50          55          60
Asp Tyr Phe Leu Cys Lys Phe Asn Asp His Asp Thr Pro Ser Met Leu
65          70          75          80
Ala Phe Ser Cys Ser Thr Asp Leu Ile Leu Ser Thr Thr Lys Xaa Ala
85          90          95
Asp Phe Leu Val Phe Arg His Ser Glu Ile Ala Gly Ser Val Ala Leu
100         105         110
Pro Ser Phe Gly Glu His Lys Thr Ser Val Val Glu Met Ala Thr Thr
115         120         125
Asn Cys Lys Tyr Ile Asn Lys Gly Val Xaa Cys Asp Arg Lys Asp Pro
130         135         140
Asp Glu Val Leu Pro Leu Trp Asn Ala Tyr Leu Lys Phe Gly Leu Arg
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Asp Met Leu

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<210> 23  
<211> 1132  
<212> DNA  
<213> Zea mays

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gcgcgctccg gctcggcgac cagccctgga tggcgcgcct agccgccgtc acctgcttcg 180

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ccgcccgtga	cgccgcggat	ccgtacgtat	tcgaggccaa	gacggtgcgc	cggtaggagc	300
tgctcgtgct	ctccgcgctt	gggtggcgga	tgcacctgt	cacgcccttc	tcctacctcc	360
agcccgtcct	cgccgacgct	gcgacgcgcc	tgcgtagctg	cgagggcgtc	ctgctcgcg	420
tcatggccga	ctggagggtg	cctcggcacc	ggccttcggc	gtgggcccgc	gccgcgttgc	480
tgatcacagc	cgccgcgggc	gacggcgggc	acggcgacgg	cgacacggag	ctcctggcg	540
tcatcaatgc	ccccgaggac	aagaccgcgc	agtgtgccaa	gatcatctcc	gaggtgacgg	600
gcatgagctt	cctcgccctg	gatgtcgggc	tgagcgccgg	aaataagcgt	aagcacgcgg	660
cggcgcagtt	gtactcgccg	ccgcccagcc	cgagcggcgt	gatcggcgcg	ctgtcctgct	720
tcagctgcga	gagctcgacg	tccgccaccg	ctatggctgc	ggcggtcggc	ccgtgggcgc	780
cgctggcgct	cgtgtccgtg	tcgtcctctc	cagagccacc	aggtcggggc	cccaagcgcg	840
cagcggcggc	gtcggcgctg	gcgtcggcgt	cagccggggg	cgcgccaccg	gtccaggtcc	900
cgcatcagct	accccccgac	gaggagagcc	gcgacgcctg	gccgtccacc	tgcgccgcgt	960
gacgcaccgt	gccggaaaac	gtgcctatgg	cgagaccgcc	gttcgggtgg	ggtagagaat	1020
ggagaacaag	gagcatcatt	ggctcgcgct	ggtgagcagg	agaacgaact	attttgccca	1080
ttgccgtgac	agatgggggg	tgttcactgc	gtggagccgc	gctgancaat	ga	1132

<210> 24

<211> 318

<212> PRT

<213> Zea mays

<400> 24

Asn	Ser	Ala	Arg	Ala	Ala	Val	Gly	Trp	Val	Ser	Arg	Ala	Ala	Ala	Arg
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Leu	Gly	Phe	Ser	Ala	Leu	Thr	Ala	Ala	Leu	Ala	Ala	Ala	Tyr	Leu	Asp
			20				25						30		

Arg	Cys	Phe	Leu	Pro	Gly	Gly	Ala	Leu	Arg	Leu	Gly	Asp	Gln	Pro	Trp
		35					40					45			

Met	Ala	Arg	Leu	Ala	Ala	Val	Thr	Cys	Phe	Ala	Leu	Ala	Ala	Lys	Val
	50					55					60				

Glu	Glu	Thr	Arg	Val	Pro	Pro	Leu	Leu	Asp	Leu	Gln	Leu	Tyr	Ala	Ala
65				70					75					80	

Ala	Asp	Ala	Ala	Asp	Pro	Tyr	Val	Phe	Glu	Ala	Lys	Thr	Val	Arg	Arg
				85				90						95	

Met	Glu	Leu	Leu	Val	Leu	Ser	Ala	Leu	Gly	Trp	Arg	Met	His	Pro	Val
		100						105					110		

Thr	Pro	Phe	Ser	Tyr	Leu	Gln	Pro	Val	Leu	Ala	Asp	Ala	Ala	Thr	Arg
		115				120						125			

Leu	Arg	Ser	Cys	Glu	Gly	Val	Leu	Leu	Ala	Val	Met	Ala	Asp	Trp	Arg
	130					135					140				

Trp	Pro	Arg	His	Arg	Pro	Ser	Ala	Trp	Ala	Ala	Ala	Ala	Leu	Leu	Ile
145					150				155						160

Thr	Ala	Ala	Ala	Gly	Asp	Gly	Gly	Asp	Gly	Asp	Gly	Asp	Thr	Glu	Leu
				165				170						175	

Leu	Ala	Leu	Ile	Asn	Ala	Pro	Glu	Asp	Lys	Thr	Ala	Glu	Cys	Ala	Lys
			180					185					190		

Ile	Ile	Ser	Glu	Val	Thr	Gly	Met	Ser	Phe	Leu	Ala	Cys	Asp	Val	Gly
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

195	200	205
Val Ser Ala Gly Asn Lys Arg Lys His Ala Ala Ala Gln Leu Tyr Ser		
210	215	220
Pro Pro Pro Ser Pro Ser Gly Val Ile Gly Ala Leu Ser Cys Phe Ser		
225	230	235
Cys Glu Ser Ser Thr Ser Ala Thr Ala Met Ala Ala Ala Val Gly Pro		
	245	250
Trp Ala Pro Ser Ala Ser Val Ser Val Ser Ser Ser Pro Glu Pro Pro		
	260	265
Gly Arg Ala Pro Lys Arg Ala Ala Ala Ala Ser Ala Ser Ala Ser Ala		
	275	280
Ser Ala Gly Val Ala Pro Pro Val Gln Val Pro His Gln Leu Pro Pro		
	290	295
Asp Glu Glu Ser Arg Asp Ala Trp Pro Ser Thr Cys Ala Ala		
305	310	315

<210> 25  
 <211> 674  
 <212> DNA  
 <213> Glycine max

<220>  
 <221> unsure  
 <222> (527)  
 <223> n = A, C, G or T

<220>  
 <221> unsure  
 <222> (561)  
 <223> n = A, C, G or T

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 <223> n = A, C, G or T

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 tccttctcca tcggggcatt ccgcactctc catcccataa aagtcccaga tccaagatgg 120  
 cttaccacca tcaaaaatcc cttttggaca ccctatactg ctccgaagag cattggatag 180  
 ggggaaggtga atttgaccaa gcagaggagg agtacggtaa cagtaatagc aatagtagca 240  
 gcaccttagt aaacaactcc cctgagtcct cccctcattt gttgctcgaa agcgacatgt 300  
 tttgggacga acaagagttg gcacgcgtgt tggagaaaga acaacacaac ccactaagca 360  
 cttgctgtct ccaaagcaac cctgccttgg aggggtgctcg catagaagcc gtggagtgga 420  
 ttctcaaagt aaacgcccac tactccttct ctgccctcac cgctgttctt gctgtcaact 480  
 actttgaccg ttttctcttc agcttccgct ttcagaatga cattaancca tggatgactc 540  
 ggggtcgctg ccgtcgcttg nctctccctc gctgccaaag tgggcgagac acacgttccc 600  
 tttcttattt gacccttcaa caaagtggga ggaggagtan atnctttgtt ccaagccaaa 660

gacgattaaa aaag

674

<210> 26

<211> 186

<212> PRT

<213> Glycine max

<220>

<221> UNSURE

<222> (137)

<223> Xaa = ANY AMINO ACID

<220>

<221> UNSURE

<222> (149)

<223> Xaa = ANY AMINO ACID

<220>

<221> UNSURE

<222> (175)..(176)

<223> Xaa = ANY AMINO ACID

<400> 26

Met Ala Tyr His His Gln Lys Ser Leu Leu Asp Thr Leu Tyr Cys Ser  
1 5 10 15

Glu Glu His Trp Ile Gly Glu Gly Glu Phe Asp Gln Ala Glu Glu Glu  
20 25 30

Tyr Gly Asn Ser Asn Ser Asn Ser Ser Ser Thr Leu Val Asn Asn Ser  
35 40 45

Pro Glu Ser Ser Pro His Leu Leu Leu Glu Ser Asp Met Phe Trp Asp  
50 55 60

Glu Gln Glu Leu Ala Ser Leu Leu Glu Lys Glu Gln His Asn Pro Leu  
65 70 75 80

Ser Thr Cys Cys Leu Gln Ser Asn Pro Ala Leu Glu Gly Ala Arg Ile  
85 90 95

Glu Ala Val Glu Trp Ile Leu Lys Val Asn Ala His Tyr Ser Phe Ser  
100 105 110

Ala Leu Thr Ala Val Leu Ala Val Asn Tyr Phe Asp Arg Phe Leu Phe  
115 120 125

Ser Phe Arg Phe Gln Asn Asp Ile Xaa Pro Trp Met Thr Arg Gly Arg  
130 135 140

Cys Arg Arg Leu Xaa Leu Pro Arg Cys Gln Ser Gly Arg Asp Thr Arg  
145 150 155 160

Ser Leu Ser Tyr Leu Thr Leu Gln Gln Ser Gly Arg Arg Ser Xaa Xaa  
165 170 175

Phe Val Pro Ser Gln Arg Arg Leu Lys Lys  
180 185

<210> 27

<211> 554  
 <212> DNA  
 <213> Glycine max

<400> 27  
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 ttcacacact gagacacaca gagagagaaa aataaagggt gtgatgggtg tcttactgag 120  
 tgtttttcttt ttataatgaa caaagaactg cacaccctct tcttcaccga agaagaagat 180  
 ggcaattcag caccacaatg accaactaga gcataatgaa aatgtctcat ctgtccttga 240  
 tgcccttttac tgtgacgaag gaaagtggga agaggaagag gaggagaaaag aagaagaaga 300  
 agatgaagggt gaaaatgaaa gtgaagtgcac aacaaacact gcaacttgtc ttttccctct 360  
 gctcttggtg gagcaagact tgttctggga agatgaggaa ctaaactcta tcttttccaa 420  
 agagaagggt caacatgaag aagcctatgg tataacaatc tgaacagtga tgtgtataac 480  
 aacaacaaca atactagtat ataatgtgat ttggctcttg ctcttcagct cgtcggagcg 540  
 tgatgatgct gaat 554

<210> 28  
 <211> 94  
 <212> PRT  
 <213> Glycine max

<400> 28  
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 Ser Ser Val Leu Asp Ala Leu Tyr Cys Asp Glu Gly Lys Trp Glu Glu  
 20 25 30  
 Glu Glu Glu Glu Lys Glu Glu Glu Glu Asp Glu Gly Glu Asn Glu Ser  
 35 40 45  
 Glu Val Thr Thr Asn Thr Ala Thr Cys Leu Phe Pro Leu Leu Leu Leu  
 50 55 60  
 Glu Gln Asp Leu Phe Trp Glu Asp Glu Glu Leu Asn Ser Ile Phe Ser  
 65 70 75 80  
 Lys Glu Lys Val Gln His Glu Glu Ala Tyr Gly Ile Thr Ile  
 85 90

<210> 29  
 <211> 372  
 <212> PRT  
 <213> Catharanthus roseus

<400> 29  
 Met Ala Asp Lys Glu Asn Cys Ile Arg Val Thr Arg Leu Ala Lys Lys  
 1 5 10 15  
 Arg Ala Val Glu Ala Met Ala Ala Ser Glu Gln Gln Arg Pro Ser Lys  
 20 25 30  
 Lys Arg Val Val Leu Gly Glu Leu Lys Asn Leu Ser Ser Asn Ile Ser  
 35 40 45  
 Ser Ile Gln Thr Tyr Asp Phe Ser Ser Gly Pro Gln Lys Gln Gln Lys  
 50 55 60  
 Asn Lys Asn Lys Arg Lys Ala Lys Glu Ser Leu Gly Phe Glu Val Lys  
 65 70 75 80



<212> PRT  
 <213> Arabidopsis thaliana

<400> 30

Met	Arg	Ser	Tyr	Arg	Phe	Ser	Asp	Tyr	Leu	His	Met	Ser	Val	Ser	Phe	1	5	10	15
Ser	Asn	Asp	Met	Asp	Leu	Phe	Cys	Gly	Glu	Asp	Ser	Gly	Val	Phe	Ser	20	25	30	
Gly	Glu	Ser	Thr	Val	Asp	Phe	Ser	Ser	Ser	Glu	Val	Asp	Ser	Trp	Pro	35	40	45	
Gly	Asp	Ser	Ile	Ala	Cys	Phe	Ile	Glu	Asp	Glu	Arg	His	Phe	Val	Pro	50	55	60	
Gly	His	Asp	Tyr	Leu	Ser	Arg	Phe	Gln	Thr	Arg	Ser	Leu	Asp	Ala	Ser	65	70	75	80
Ala	Arg	Glu	Asp	Ser	Val	Ala	Trp	Ile	Leu	Lys	Val	Gln	Ala	Tyr	Tyr	85	90	95	
Asn	Phe	Gln	Pro	Leu	Thr	Ala	Tyr	Leu	Ala	Val	Asn	Tyr	Met	Asp	Arg	100	105	110	
Phe	Leu	Tyr	Ala	Arg	Arg	Leu	Pro	Glu	Thr	Ser	Gly	Trp	Pro	Met	Gln	115	120	125	
Leu	Leu	Ala	Val	Ala	Cys	Leu	Ser	Leu	Ala	Ala	Lys	Met	Glu	Glu	Ile	130	135	140	
Leu	Val	Pro	Ser	Leu	Phe	Asp	Phe	Gln	Val	Ala	Gly	Val	Lys	Tyr	Leu	145	150	155	160
Phe	Glu	Ala	Lys	Thr	Ile	Lys	Arg	Met	Glu	Leu	Leu	Val	Leu	Ser	Val	165	170	175	
Leu	Asp	Trp	Arg	Leu	Arg	Ser	Val	Thr	Pro	Phe	Asp	Phe	Ile	Ser	Phe	180	185	190	
Phe	Ala	Tyr	Lys	Ile	Asp	Pro	Ser	Gly	Thr	Phe	Leu	Gly	Phe	Phe	Ile	195	200	205	
Ser	His	Ala	Thr	Glu	Ile	Ile	Leu	Ser	Asn	Ile	Lys	Glu	Ala	Ser	Phe	210	215	220	
Leu	Glu	Tyr	Trp	Pro	Ser	Ser	Ile	Ala	Ala	Ala	Ala	Ile	Leu	Cys	Val	225	230	235	240
Ala	Asn	Glu	Leu	Pro	Ser	Leu	Ser	Ser	Val	Val	Asn	Pro	His	Glu	Ser	245	250	255	
Pro	Glu	Thr	Trp	Cys	Asp	Gly	Leu	Ser	Lys	Glu	Lys	Ile	Val	Arg	Cys	260	265	270	
Tyr	Arg	Leu	Met	Lys	Ala	Met	Ala	Ile	Glu	Asn	Asn	Arg	Leu	Asn	Thr	275	280	285	
Pro	Lys	Val	Ile	Ala	Lys	Leu	Arg	Val	Ser	Val	Arg	Ala	Ser	Ser	Thr	290	295	300	

Leu Thr Arg Pro Ser Asp Glu Ser Ser Ser Pro Cys Lys Arg Arg Lys  
 305 310 315 320  
 Leu Ser Gly Tyr Ser Trp Val Gly Asp Glu Thr Ser Thr Ser Asn  
 325 330 335  
 <210> 31  
 <211> 354  
 <212> PRT  
 <213> Nicotiana tabacum  
 <400> 31  
 Met Ala Ala Asp Asn Ile Tyr Asp Phe Val Ala Ser Asn Leu Leu Cys  
 1 5 10 15  
 Thr Glu Thr Lys Ser Leu Cys Phe Asp Asp Val Asp Ser Leu Thr Ile  
 20 25 30  
 Ser Gln Gln Asn Ile Glu Thr Lys Ser Lys Asp Leu Ser Phe Asn Asn  
 35 40 45  
 Gly Ile Arg Ser Glu Pro Leu Ile Asp Leu Pro Ser Leu Ser Glu Glu  
 50 55 60  
 Cys Leu Ser Phe Met Val Gln Arg Glu Met Glu Phe Leu Pro Lys Asp  
 65 70 75 80  
 Asp Tyr Val Glu Arg Leu Arg Ser Gly Asp Leu Asp Leu Ser Val Arg  
 85 90 95  
 Lys Glu Ala Leu Asp Trp Ile Leu Lys Ala His Met His Tyr Gly Phe  
 100 105 110  
 Gly Glu Leu Ser Phe Cys Leu Ser Ile Asn Tyr Leu Asp Arg Phe Leu  
 115 120 125  
 Ser Leu Tyr Glu Leu Pro Arg Ser Lys Thr Trp Thr Val Gln Leu Leu  
 130 135 140  
 Ala Val Ala Cys Leu Ser Leu Ala Ala Lys Met Glu Glu Ile Asn Val  
 145 150 155 160  
 Pro Leu Thr Val Asp Leu Gln Val Gly Asp Pro Lys Phe Val Phe Glu  
 165 170 175  
 Gly Lys Thr Ile Gln Arg Met Glu Leu Leu Val Leu Ser Thr Leu Lys  
 180 185 190  
 Trp Arg Met Gln Ala Tyr Thr Pro Tyr Thr Phe Ile Asp Tyr Phe Met  
 195 200 205  
 Arg Lys Met Asn Gly Asp Gln Ile Pro Ser Arg Pro Leu Ile Ser Gly  
 210 215 220  
 Ser Met Gln Leu Ile Leu Ser Ile Ile Arg Ser Ile Asp Phe Leu Glu  
 225 230 235 240  
 Phe Arg Ser Ser Glu Ile Ala Ala Ser Val Ala Met Ser Val Ser Gly  
 245 250 255

Glu Ile Gln Ala Lys Asp Ile Asp Lys Ala Met Pro Cys Phe Phe Ile  
 260 265 270  
 His Leu Asp Lys Gly Arg Val Gln Lys Cys Val Glu Leu Ile Gln Asp  
 275 280 285  
 Leu Thr Thr Ala Thr Ile Thr Thr Ala Ala Ala Ala Ser Leu Val Pro  
 290 295 300  
 Gln Ser Pro Ile Gly Val Leu Glu Ala Ala Ala Cys Leu Ser Tyr Lys  
 305 310 315 320  
 Ser Gly Asp Glu Arg Thr Val Gly Ser Cys Thr Thr Ser Ser His Thr  
 325 330 335  
 Lys Arg Arg Lys Leu Asp Thr Ser Ser Leu Glu His Gly Thr Ser Glu  
 340 345 350

Lys Leu

<210> 32  
 <211> 373  
 <212> PRT  
 <213> Nicotiana tabacum

<400> 32  
 Met Ala Ile Glu His Asn Glu Gln Gln Glu Leu Ser Gln Ser Phe Leu  
 1 5 10 15  
 Leu Asp Ala Leu Tyr Cys Glu Glu Glu Glu Glu Lys Trp Gly Asp Leu  
 20 25 30  
 Val Asp Asp Glu Thr Ile Ile Thr Pro Leu Ser Ser Glu Val Thr Thr  
 35 40 45  
 Thr Thr Thr Thr Thr Thr Lys Pro Asn Ser Leu Leu Pro Leu Leu Leu  
 50 55 60  
 Leu Glu Gln Asp Leu Phe Trp Glu Asp Glu Glu Leu Leu Ser Leu Phe  
 65 70 75 80  
 Ser Lys Glu Lys Glu Thr His Cys Trp Phe Asn Ser Phe Gln Asp Asp  
 85 90 95  
 Ser Leu Leu Cys Ser Ala Arg Val Asp Ser Val Glu Trp Ile Leu Lys  
 100 105 110  
 Val Asn Gly Tyr Tyr Gly Phe Ser Ala Leu Thr Ala Val Leu Ala Ile  
 115 120 125  
 Asn Tyr Phe Asp Arg Phe Leu Thr Ser Leu His Tyr Gln Lys Asp Lys  
 130 135 140  
 Pro Trp Met Ile Gln Leu Ala Ala Val Thr Cys Leu Ser Leu Ala Ala  
 145 150 155 160  
 Lys Val Glu Glu Thr Gln Val Pro Leu Leu Leu Asp Phe Gln Val Glu  
 165 170 175

Asp Ala Lys Tyr Val Phe Glu Ala Lys Thr Ile Gln Arg Met Glu Leu  
 180 185 190  
 Leu Val Leu Ser Ser Leu Lys Trp Arg Met Asn Pro Val Thr Pro Leu  
 195 200 205  
 Ser Phe Leu Asp His Ile Ile Arg Arg Leu Gly Leu Arg Asn Asn Ile  
 210 215 220  
 His Trp Glu Phe Leu Arg Arg Cys Glu Asn Leu Leu Leu Ser Ile Met  
 225 230 235 240  
 Ala Asp Cys Arg Phe Val Arg Tyr Met Pro Ser Val Leu Ala Thr Ala  
 245 250 255  
 Ile Met Leu His Val Ile His Gln Val Glu Pro Cys Asn Ser Val Asp  
 260 265 270  
 Tyr Gln Asn Gln Leu Leu Gly Val Leu Lys Ile Asn Lys Glu Lys Val  
 275 280 285  
 Asn Asn Cys Phe Glu Leu Ile Ser Glu Val Cys Ser Lys Pro Ile Ser  
 290 295 300  
 His Lys Arg Lys Tyr Glu Asn Pro Ser His Ser Pro Ser Gly Val Ile  
 305 310 315 320  
 Asp Pro Ile Tyr Ser Ser Glu Ser Ser Asn Asp Ser Trp Asp Leu Glu  
 325 330 335  
 Ser Thr Ser Ser Tyr Phe Pro Val Phe Lys Lys Ser Arg Val Gln Glu  
 340 345 350  
 Gln Gln Met Lys Leu Ala Ser Ser Ile Ser Arg Val Phe Val Glu Ala  
 355 360 365  
 Val Gly Ser Pro His  
 370